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DoMORE®

EXPECT MORE FROM OUR REDESIGNED, REIMAGINED -7 SERIES WHEEL LOADERS

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MASSACHUSETTS COMPANY BRINGS THE POWER — IN MORE WAYS THAN ONE

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Summer 2021 | Vol. 11, No. 1

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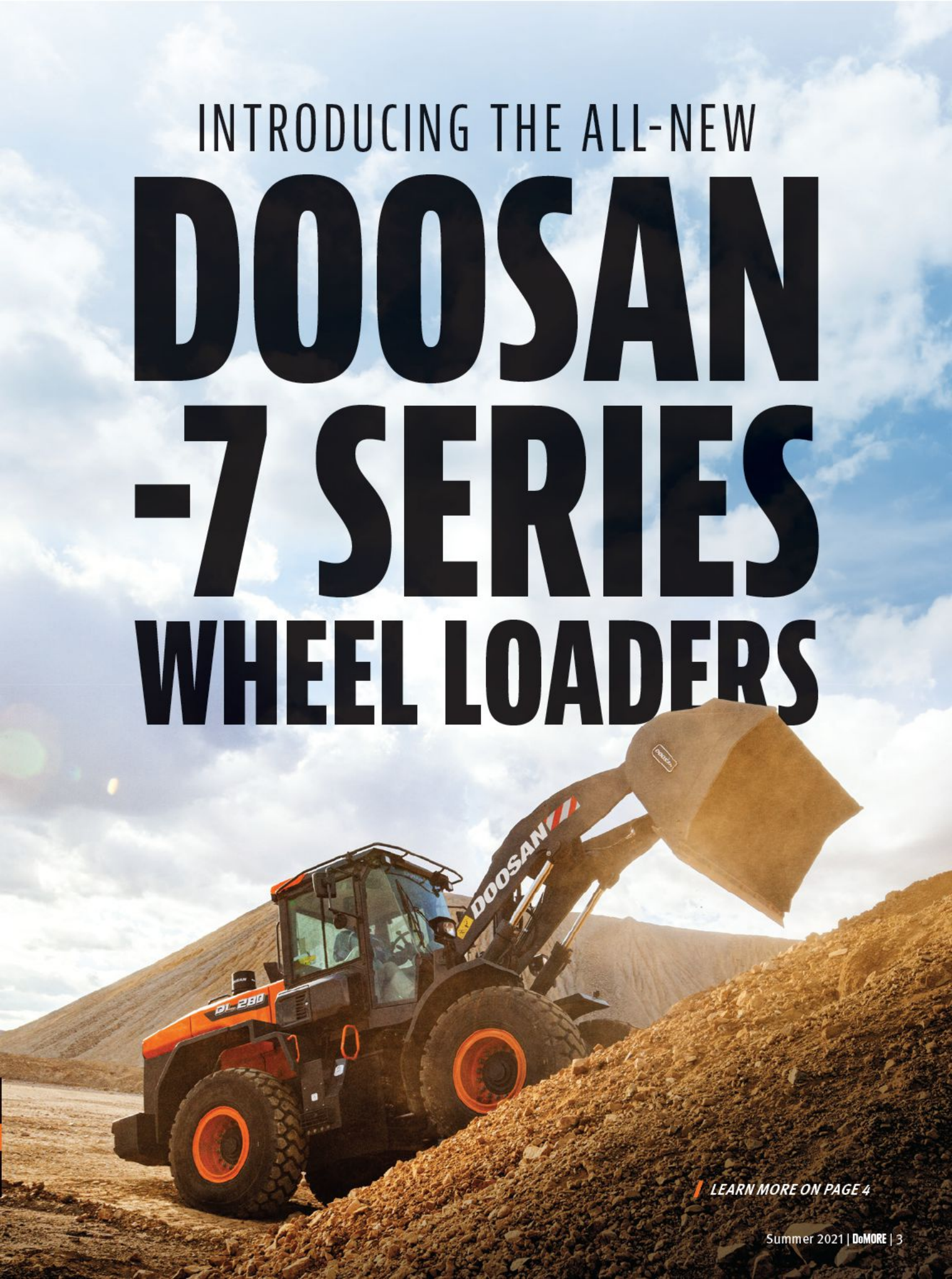

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NEXT-GENERATION LOADERS ARE HERE

The market-leading performance features in Doosan® -7 Series wheel loaders can lower cost of ownership and maximize uptime protection.

Upgraded features include stronger axles and larger-capacity buckets to carry more and maximize productivity. New -7 Series wheel loaders offer industry-leading comfort, a redesigned cab, enhanced visibility and customizable steering. These features will help retain operators and keep them more focused and productive on the job.

Innovative technologies in next-generation wheel loaders help our customers work smarter and more efficiently.

AUTOMATIC LUBRICATION SYSTEM OPTION

The optional automatic lubrication system is covered under full warranty protection. It delivers grease at the middle of the pins and bushings for better distribution. The system comes standard on the DL580-7 wheel loader.

LARGE ARTICULATION BEARINGS

Self-centering, double-tapered roller bearings distribute vertical and horizontal loads. Bearings have dust seals, and coverings are vented to prevent grease overfill.

BIGGER BUCKETS

On select models, bucket capacity is 7% greater for more productive passes.

STRONGER, LARGER AXLES

New axles increase lift capacity on select models. In combination with larger axles, outboard brakes and planetary gears make servicing easier.

STRENGTHENED BOX FRAME

Engineers used the latest computer-aided structure analysis to add material to reinforce key sections.

Features vary by model. See model specifications for details at na.DoosanEquipment.com.

NEW LOOK
It's not just a minor change here or there. There's a new body style and award-winning exterior design with an enhanced color scheme.

STANDARD REVERSIBLE FAN
The hydraulically driven fan moves with variable speeds that are proportional to the temperature. You can adjust the reverse direction interval from the new Doosan® Smart Touch display.

NEW, WIDE-FIN RADIATOR
The space between radiator fins is 40% wider, making the radiator less prone to clogging and debris easier to clean out. **(Not available on the DL550-7 and DL580-7.)**

OPTIONAL ADDITIONAL REAR COUNTERWEIGHT
Add a rear counterweight to increase lifting capacity and stability.

NEW CAB New -7 Series wheel loaders have a completely redesigned cab, with ergonomic control layout and 14% more glass.

DOOSAN SMART TOUCH DISPLAY
An 8-inch touch screen displays all important settings and information on one screen. This includes the view from the standard rearview camera.

INCREASED LEG ROOM
Work in comfort with extra leg room. The heating and air conditioning system has been relocated, which has increased the space between the seat and steering column.

EASILY ADJUST DISPLAY HEIGHT
No tools needed to move the display up and down.

MORE STORAGE SPACE
Additional storage space is available by the USB charging port for your convenience.

IMPROVED A/C AND HEATING
New air outlet locations and improved airflow for long days of work in hot summer months.

3 POWER MODES
Choose from three power modes for enhanced fuel efficiency.

OPTIONAL ELECTRIC STEERING
In models with this feature, the electronic joystick, which you can customize to your sensitivity preference, is comfortably integrated into the left armrest.

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INNOVATIVE TECHNOLOGY FEATURES

DOOSANCONNECT® TELEMATICS
Check machine location, operating hours, fuel usage, engine idle versus work time, error codes, engine and hydraulic oil temperature and other data points from a phone, tablet or computer.

SITUATION AWARENESS TECHNOLOGY
Automatically monitors the machine's activity and adjusts the wheel loader engine's output to match real-time requirements of the hydraulic system and drivetrain.

DOOSAN SMART GUIDANCE SYSTEM
Analyzes your driving habits and provides tips during operation on the Doosan® Smart Touch display to improve your efficiency.

DOOSAN SMART LOAD WEIGHING SYSTEM
Tells you the weight of material in the bucket. All menus and settings are integrated in the Doosan Smart Touch screen.

DOOSAN TRANSPARENT BUCKET OPTION
Imagine bucket blindspots virtually gone. A Doosan-exclusive technology allows operators to look at their Doosan Smart Touch screen and see in front of them as if their bucket were transparent.

DOOSAN SMART KEY
A key fob can unlock the cab and allows push-button engine start.

NEW -7 SERIES DOOSAN WHEEL LOADERS
- DL280-7 replaces the DL280-5
- DL320-7 replaces the DL300-5
- DL380-7 replaces the DL350-5
- DL420-7 replaces the DL420-5
- DL480-7 replaces the DL450-5
- DL550-7 replaces the DL550-5
- DL580-7 replaces the DL580-5

Look for more -7 Series models coming later this year.

Watch the next-generation Doosan wheel loaders at work:

na.DoosanEquipment.com/ 7wheelloader

LEARN MORE AND FIND SPECS FOR NEW DOOSAN -7 SERIES WHEEL LOADERS AT **NA.DOOSANEQUIPMENT.COM**

Features vary by model. See model specifications for details at na.DoosanEquipment.com.

UP-AND-COMING CONTRACTOR SOLVES CHALLENGES WITH HEAVY EQUIPMENT

COMPANY INFORMATION

Business: Western Earthworks
In business since: 2015
Location: Florence, Massachusetts
Doosan equipment: DX140LC-3, DX140LCR-5, DX170LC-5, DX235LCR-5 and DX350LC-5 crawler excavators; DL220-5 wheel loader; DA30 articulated dump truck
Doosan dealer: Barry Equipment

Jack Henderson-Adams' obsession with equipment began at a young age.

"Really it started out with toy machines on the living room rug of my childhood home," Jack says. "It moved outside to the sandbox and from there to driving a lawnmower. I've always kind of gravitated towards engines and things that make noise. If it's got wheels or tracks and a motor, I'm usually all over it."

Hailing from a family of teachers, Jack bucked family tradition and chose an equipment-focused path. He worked at a farm and at landscaping companies in his teens. After stints grooming snow at a ski resort and working in construction and land clearing, he jumped into a career selling heavy equipment before striking out on his own six years ago at age 32 to launch Western Earthworks. A common theme of all his jobs? Equipment.

"I've always stuck to this because I don't know what else I'd want to be doing," he says. "It's about solving problems, and the feeling you get after you complete those tasks. That leads you from one project to the next and leaves you kind of hungry for more."

Western Earthworks offers a variety of construction- and site-related services. The company's services include the following: solar development, residential construction, road installation, land clearing, septic system work and landscape construction.

"We kind of cover the whole gamut," Jack says. "We have a softer touch, I think, than many other big commercial construction companies because some of the wetland areas in these projects are extremely fragile. You need to approach them as such. We're at home with these specialty projects."

SPECIALIZING IN SOLAR

Jack says his company has been taking on more and more solar projects, bringing knowledge and expertise to the job. A recent project that required Western Earthworks' special touch was a new 3.5-megawatt commercial solar farm installation in Lunenburg, Massachusetts. Lunenburg, pop. 11,657, is roughly 45 miles northwest of Boston and prides itself on offering community solar power for its residents.

The first step in solar farm construction? Preparing the land. Western Earthworks cleared and prepped 12 acres for Lunenburg's new solar farm. Jack noted that, as with any project, this one presented some unique challenges.

"Working near wetlands in Massachusetts, we face strict guidelines and regulations," he says. "Some of these wetlands in our project areas are fragile. We need to approach them as such.

"We strive to become a leader in this field. We welcome the challenge. Although these challenges can make our job difficult at times, it is 100% there for our future. And it's for the wellbeing of our ecosystems that we work around."

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> **I CAN BASICALLY WORK MY WAY ACROSS THE JOBSITE AND DO IT ALL WITH ONE MACHINE.**
>
> — **JOHN HANSBERRY** / Western Earthworks

CLEARING, GRADING AND EXCAVATING

To kick off the site preparation stage of the solar farm project, Jack and the Western Earthworks crew first built an approximately 3,000-foot access road from the nearby street, which involved navigating a sensitive wetland crossing. Next, they cleared the area of existing trees and foliage and stacked the felled trees. Both projects relied on the power of a Doosan® DX170LC-5 crawler excavator with a dangle harvesting head attachment.

"The equipment needs to be flexible," Jack says. "The dangle head hangs and freely swings from the excavator's quick coupler. It's paired with a bucket-thumb combo, which allows us to fell and buck the wood onsite."

A second Doosan excavator, a DX225LC-5, lifted and fed the knocked-down trees into a horizontal grinder for processing into mulch, which the crew then placed in strategic areas around the property for erosion control purposes. The DX225LC-5 also went back over the land to remove the remaining tree stumps using a bucket and thumb. When the operator grabbed and pulled the stumps, most of the dirt fell through the thumb's tines, speeding up the stump removal process and minimizing the need for material handling.

"I like how stable the machine is," says John Hansberry, an operator on the Western Earthworks crew. "I can reach really far. It curls out and has plenty of height to load a haul truck. With the thumb, we can handle things like grindings, moving sticks and pulling stumps. I can basically work my way across the jobsite and do it all with one machine."

With the land clearing complete, the Western Earthworks crew switched into excavating and grading mode. After performing a 5,000-yard cut and a 5,000-yard fill, they laid 6,000 cubic yards of topsoil onto the site using a DL220-5 wheel loader. They then cleared the area of any stones larger than six inches in diameter before grading the land to the project's specifications.

"I'd say this machine is very precise," John says. "The joysticks are pretty solid. I definitely feel in control. I don't worry about hitting anything I don't want to. I don't have to track backwards to pick something up."

Next, the DX170LC-5 and the DX225LC-5 joined yet another Doosan excavator — a DX235LCR-5 — to trench the area for underground utilities using trenching and digging buckets. Once the trenching stage was done, the crew had completed about 3,000 feet of trenching to support the solar farm utilities.

"The DX235LCR-5 excavator's reduced tail swing is great for digging around panels and racking," Jack says. "When we trench, this is our go-to for maneuverability and breakout force."

After completing the land clearing and dirt work, Western Earthworks wrapped up their portion of the solar farm project by pouring several thousand feet of concrete and hydroseeding 550,000 square feet of land for erosion control purposes.

FINDING THE RIGHT EQUIPMENT PARTNER

Jack started his company with another brand of equipment, but after experiencing poor rental rates from the other manufacturer's dealer, he began looking for a new equipment partner.

"I'm an up-and-comer — no one's giving me the time of day," Jack says. "I'm in my mid-30s saying I have an excavating company."

Jack knew a few of the employees at Barry Equipment, his local Doosan dealer, so he gave them a call. He rented a DX140LC for a job and was impressed at the price, reliability and quality of the machine, so he signed a lease agreement.

"The leasing program really allowed me to get my hands on equipment that I could call my own," Jack says. "On top of that, I got a chance to go out to The ROC (Real Operation Center). I met some of the techs out there. They wanted us to tell them what we liked about the equipment. They wanted to hear feedback from the people out in the field. They wanted to make those changes. I got behind that immediately because that very much relates to a lot of my background with experiences I've had with equipment."

Today, Western Earthworks leases seven Doosan machines to take on their various

projects. Jack appreciates the equipment's fuel efficiency and quality construction.

"I've found that despite being large-frame machines, the craftsmanship, the construction, the way the machines are put together — there's not one thing on these machines that isn't well thought out," Jack says. "Sprockets, idlers, chains, pads, they all look like they just left the factory. Despite how rough our jobsites are, it's not a concern that I have."

Jack prefers leasing to buying because it allows for a more predictable cash flow and equipment flexibility for his business, and he prefers leasing to buying used because he knows he'll be in a brand-new machine with no hidden issues.

"If I want that machine, I'm going to buy it," Jack says. "I know where it's been. I know how I took care of it. I know every little nook and cranny, scratch, ding and dent, and I own it. It's mine. There are no surprises. It makes me feel safe."

Jack has full confidence in his Doosan equipment, but if he does have an issue come up, he knows his sales specialist, Joe Barry, and the rest of the Barry Equipment team have his back.

"If I need parts or if I have problems, Barry Equipment is going to be here," Jack says. "I'm just the little guy. To have someone come out, service your stuff, pick up the phone when you have a question — that means a lot. When you have confidence in the people behind you and the equipment underneath you, it gives you a lot of confidence going at new projects because that's one less thing that you have to worry about."

Get a behind-the-scenes look at Western Earthworks' solar farm project:
na.DoosanEquipment.com/WesternEarthworks

SAFETY FIRST

Jack places a high value on keeping the Western Earthworks crew safe on the job.

"Safety is really important to me," Jack says. "The guys that I have working under me I consider family. They're my responsibility. They're my crew. The communication is really what it comes down to. In this working environment, you can't take anything for granted and you cannot assume anything."

HERE ARE FIVE WAYS JACK HELPS HIS CREW PUT SAFETY FIRST:

1. **Regular safety meetings:** "We meet every Monday and usually have a safety meeting for 45 minutes to an hour. We touch on a lot of different principles."
2. **Reviewing safety incidents:** "I watch what goes on in the nation and if there's a big accident that happened, I like to have an after-action review with the guys to line up how these accidents happen and then what precautions could be taken to avoid them."
3. **On-the-job instruction:** "If I see something on the job, I use that as the best way to train. I'll stop everybody and bring everyone over. We'll look at what's going on and what's not safe about it or what will happen if people continue. I have a young crew. It's talking it over so they understand why that happened and how it can be avoided the next time."
4. **Morning kickoff meetings:** "If we're driving an hour and you get to the job, you're taking a huge risk when you jump out of that vehicle and jump into the machine and just go to work. We take time in the morning for us to have a tailgate meeting, switch gears and get everyone on the same page."
5. **Cameras on:** "From a business owner's standpoint I make sure that if our guys are in any sort of confined operating area, the equipment cameras are on. It's a no-brainer. It comes down to safety and it also saves a few bucks for damage."

"The five minutes that it's going to take you in the morning to discuss with your guys about where you're at, what you're doing, why you're doing it and the dangers that are incorporated with it, that triggers thinking and that puts them into a place where they're thinking about it," Jack says. "The smallest little thing on a jobsite — there's no need for that not to get explained to the guys because at some point over the course of the day or the week or the project in its entirety, that small little thing could be life or death."

COMPANY INFORMATION

Business: Homestead Dirt Works and Mulching
In business since: 2016
Location: Hattiesburg, Mississippi
Doosan equipment: DX140LC-5 and DX225LC-5 crawler excavators
Doosan dealer: Equipment Incorporated

Q&A WITH MISSISSIPPI CONTRACTOR GABE SHEMPER

Gabe Shemper is well known in the Hattiesburg, Mississippi, area for his work transforming commercial and residential landscapes. He's made a name for his company, Homestead Dirt Works and Mulching, by performing a variety of earthmoving and land-clearing services.

In 2020, Gabe shared his success story with Doosan Infracore North America. Continue reading to learn more about this successful contractor and what drew him to Doosan® construction equipment.

Q: WHY DID YOU CHOOSE CONSTRUCTION AS A CAREER?

A: As a kid, my family had a scrap yard called Ben Shemper & Sons. Growing up, I've always been around heavy equipment. As I got older, I went on pipeline construction for about seven years. I came home one day and I was like, "I'm tired of living on the road." I figured that I'd go into business for myself, and I bought a compact loader with a forestry mulcher. Soon after that, I bought my first Doosan excavator.

Q: WHAT TYPE OF WORK DOES YOUR COMPANY PERFORM?

A: We perform tree clearing, stump removal, excavating, grading, dirt removal, concrete work and mulching. Our day-to-day, we build driveways. We do a lot of ponds. We're not the big guy. I'm sure some people look at my company as a big company, but we're not building interstates and levees for 200-acre lakes. Most of the people I deal with are residential customers. They might have 10 or 15 acres where they want to build a road, dig a pond or prepare a house site.

Q: HOW ARE YOU ABLE TO ACCOMPLISH SO MUCH WORK WITH A SMALL CREW?

A: Despite having a smaller crew than other construction companies, we can accomplish a lot because of our productive equipment, including three Doosan excavators. We move a lot of dirt. We'll load it out of pits with a Doosan excavator.

Q: WHAT'S YOUR TYPICAL DAY-TO-DAY LIKE?

A: On an average day, I might haul a load of dirt or haul a few loads of dirt. I might even be on a job in an excavator, but whatever I do myself, it's usually something I can stop at any time because I might have to go check on my guys or meet with a customer. I'm always busy and I do what I need to do.

Q: WHAT DO YOU ENJOY MOST ABOUT YOUR JOB?

A: I enjoy transforming people's property from a group of overgrown trees into a beautiful driveway with a house lot.

Q: WHAT DO YOU LIKE ABOUT YOUR DOOSAN EXCAVATOR?

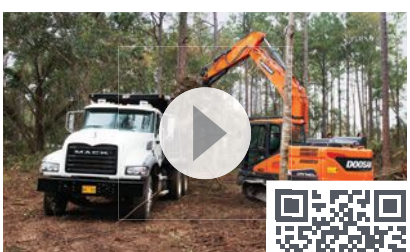
A: It's a comfortable machine. It has climate control and heated seats. And it's fast and dependable. Since I've been running Doosan excavators for five years, I haven't had any of them shut down on me. Any job that we go to, my Doosan equipment is top-notch.

Q: HOW IS YOUR RELATIONSHIP WITH YOUR LOCAL DOOSAN DEALER?

A: I've been working with Equipment Incorporated for five years. I have a good relationship with them. When I call, they react. They have parts in stock. If I have a problem, I can call them right now and they'll be fixing it quicker than any other sales and equipment dealers around here.

Q: WHAT'S THE FUTURE OF YOUR COMPANY?

A: I'll be honest, I think I'm as big as I want to be. I might need another excavator, but that's probably it. I don't want any more trucks. I see it as just kind of cruising along right where we're at. We're successful now, so I'm trying to find a spot where I'm content. It's really easy to always want more.



Watch Gabe's Doosan excavator in action:
na.DoosanEquipment.com/Homestead

TORNADO CLEANUP WORK

In 2020, numerous hurricanes came through Mississippi and spun off tornadoes. Two of Gabe Shemper's employees used Doosan® excavators to clear downed trees and pull up stumps, and then filled the holes with topsoil. Gabe's excavators are paired with buckets and thumbs. He says the combination is particularly effective when an operator is handling stumps. The excess dirt drops to the ground before the stump is removed from the site.

COMPANY INFORMATION

Business: BS Ranch and Farm
In business since: 2009
Location: Lakeland, Florida
Doosan equipment: DX300MH-5 material handler, DA40 articulated dump truck, DL300-5 wheel loaders DX300LC-5 crawler excavator
Doosan dealer: Synergy Equipment

A SOUTHWEST FLORIDA FARM TURNS ORGANICS INTO TOPSOIL

Bill Stanton grew up on a farm in his native Florida. His family raised animals and cared for the environment, and this upbringing led him to a career in a unique organic recycling business.

Bill is 54 years old and has had a lot of different careers in his lifetime. "I've worked in a lot of different things, from wastewater treatment plants to power plants," he says. His experience was invaluable when he started BS Ranch and Farm with his wife, Brandy, 12 years ago.

BS Ranch and Farm occupies 340 acres in Lakeland, Florida. Bill describes it as an industrial facility and says the soil farm is the only one of its kind in North America. He founded the business because of a need to divert organics from landfills and create a product that's comparable to topsoil.

"I grew up in a rural environment with animals and wildlife," Bill says. "I understood the balance of what it's like in the rural environment. And that's why I noticed that there was a gap between the urban and rural areas. I noticed that there was a big variation in how the different cultures and the rural and urban communities treat the environment. One of the largest things I noticed is that the consumables come from the rural areas, get trucked into the cities, and are then discarded. So, to try and make a relationship there is to have the material come back, go through a treatment process of one nature or another and, once it's healthy, be used again in the rural environment."

MATERIALS ACCEPTED

Trucks come and go at all times of the day bringing material to BS Ranch and Farm. Three main types of material are accepted: wood waste, food residuals and biosolids. They come from an area in approximately a 100-mile radius from the facility. Trucks enter the facility and are weighed on a scale. From there the trucks transport the incoming material to the delivery area.

Bill and his co-workers initiate the decomposition process that can take between three and five years.

"We leave some of the material in a whole state and let it decompose prior to either grinding or blending it with other materials," Bill says. "We create large piles that help to generate some heat. We blend the material so the wood absorbs all the nutrients and the proteins and amino acids from the decaying, more concentrated organic materials, such as septic, biosolids and food residuals." Food that is otherwise wasted is a significant part of the decomposition process. Bill accepts food residuals from food processing plants, restaurants, hotels and grocery stores.

"Grocery stores put food waste in carts that are from one to five cubic yards in size," he says. "And then they have specialty trucks that come around and pick those up. It becomes food for the vegetation. It decomposes and it has specific bacteria that help to function in the rotting process."

With some of the food waste comes packaging that must be separated from the material.

"We call our de-packaging process product destruction," Bill says. "We run the food material and packaging through machinery to separate it. We remove all the plastics and what can be considered

contaminants upfront. We even disassemble some of it by hand. What we don't get through that part of the process, we take out as much as we possibly can in the final screening process."

Biosolids are the third type of material accepted at BS Ranch and Farm.

"The biosolids finish off the entire circle of all the organic materials that are excreted from the city and urban environment," he says. "The biosolids can't stay there. It's not complete. It's not finished in its decay process, in which case, that's something that we provide.

"All of the biosolids are processed through filters to remove as many inert contaminants as possible. It's all emulsified into a liquid state. And then it goes through lagoons for up to six to eight months and even a year before it's added to the other carbon material, that being the wood and yard debris."

After the material has decayed for three to five years, employees process it with grinders and screening plants, getting it to its mature point. The new topsoil product is stockpiled and sold in bulk. Any oversize material returns to the piles and stays in operation until it's decayed.

EQUIPMENT NEEDS

Running a facility of this size and managing the organic materials requires a significant heavy equipment fleet. A variety of excavators, wheel loaders, material handlers and articulated dump trucks assist Bill and his co-workers throughout the decomposition process.

Two Doosan® DL300-5 wheel loaders handle the bulk of the yard debris, land-clearing and wood waste intake. As trucks deliver the material, a wheel loader operator uses the machine with a grapple to help offload the material, separate larger logs from smaller debris and handle the waste. A second wheel loader is equipped with a high-capacity bucket to handle the mulch that is delivered to the facility. It also loads material into a DA40 articulated dump truck (ADT) to be transported to another treatment area. Bill's employees place 5 to 10 feet of mulch on the bottom of the area before they load other material on top of it.

"We like the DL300-5 wheel loaders because they fall in the middle of the heavy equipment spectrum," Bill says. "They're very mobile and not overly big for the work that they're doing. We'll run the wheel loaders up to approximately 2,400 hours a year."

Working alongside the wheel loaders in the intake area is a Doosan DX300MH-5 material handler. It's paired with a grapple to lift and sort wood waste, and it also loads it in the Doosan ADT. A hydraulic rising cab allows the operator to get a better view of the material, which is helpful when loading the ADT.

BIRD'S-EYE VIEW

Perched atop a pile of decaying material is a Doosan DX300LC-5 excavator with a super-long-reach configuration. It's paired with a grapple attachment and uses its extended reach to work the pile.

"The operator uses the DX300LC-5 to work the toe of the slopes on the different tiers of the pile to move the logs back into the center of the pile," Bill says. "The super-long-reach configuration works well for the size of the piles in the area and the reach. Part of what we do is actually harvesting in a liquid state. And that machine is primarily for that harvesting process."

Bill's newest addition to the facility is the Doosan ADT.

"So far, the ADT has done very, very well in its handling capacity," he says. "If it didn't, it wouldn't still be out here. Our downtime has been none. It's comfortable for the operator. So we are actually in discussions to acquire several more of those trucks here in a short period of time.

"Our environment is a little bit different than a lot of other places because we're working with organic material. We have to be concerned about the dust buildup and collection on the machines. So we clean it out on a regular basis, but if the machine is too compressed and too confined in its engine and control compartments, then the material can build up and cause fires. We've had other trucks that we can't use out here due to the fact that they actually catch fire very quickly. And so far, we've had no problems with Doosan in regard to that. It breathes very well. It's easy to clean and maintain."

'COME A LONG WAY'

Bill got his first taste of Doosan equipment nearly 20 years ago. He was working in the marine construction industry. The machines

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> WE LIKE THE DL300-5 WHEEL LOADERS BECAUSE THEY FALL IN THE MIDDLE OF THE HEAVY EQUIPMENT SPECTRUM. THEY'RE **VERY MOBILE AND NOT OVERLY BIG FOR THE WORK THAT THEY'RE DOING**.
>
> — **BILL STANTON** / BS Ranch and Farm

performed well then and still do today. "The biomechanics of the machines make them easier to operate," he says. "The relationship of the operator to the machine itself has come a long way. Doosan has done a really, really good job with that."

He's also noted enhanced fuel efficiency with today's Doosan equipment compared to earlier iterations.

"The fuel consumption is not as high as on other brands because the engines and transmissions regulate themselves," he says. "So the operators really aren't able to overpower the machine. The operators run the excavators a lot in the eco mode because they don't need all that power ... our material is light."

PARTNERSHIP WITH SYNERGY

When Bill needed heavy equipment, he searched for a local Doosan dealer. At the time, Doosan did not have a presence in his area, but that's changed. A Synergy Equipment location 30 miles from BS Ranch and Farm now provides Doosan machines, parts and service.

Half a dozen Doosan machines are hard at work at BS Ranch and Farm. A big part of the successful relationship between the facility and Doosan is Synergy Equipment's ability to pair the right attachments with Bill's machines.

"Since we've been working with them for the last two years, Synergy has been able to provide well-balanced attachments for us," Bill says.

Parts support is another reason why Bill has been pleased with Doosan and Synergy. Synergy employees deliver parts or have them shipped directly to the facility.

"If I need parts, I can usually have them within 24 hours," Bill says. "It's been a one-stop call. On other equipment brands, I've had some of the machines down for up to months at a time due to a lack of parts supply and availability. Synergy has been very responsive."

WHAT'S NEXT?

Based on the success of BS Ranch and Farm and the growing need to recycle organic material, Bill has big plans for the future of his company.

"We have plans to expand," he says. "Our facility here is a large-scale prototype. We plan to put up a farm similar to this in the Fort Myers and Naples area to service that part of the state."

Watch a video to see BS Ranch and Farm and Bill's Doosan equipment helping process the material: *na.DoosanEquipment.com/BSRanch*

Brandy and Bill Stanton, owners of BS Ranch and Farm.

MAINTENANCE MADE EASY

Maintenance is paramount to Bill Stanton and his employees. That's why he purchased maintenance service contracts from Synergy Equipment for his Doosan® machines.

"It's worked out very well for us," Bill says. "It makes it easier for us to not have to deal with those fluids and services of that nature. It's very convenient. And it is financially feasible.

Synergy services the drive trains, planetaries and hydraulic services at the 500-hour and 1,000-hour intervals. They send it all off for testing and can let us know the state and the health of the machine."

BOTTLES UP

COMPANY INFORMATION

Business: GlassWRX
In business since: 2020
Location: Beaufort, South Carolina
Doosan equipment: DL220-5 wheel loaders
Doosan dealer: Synergy Equipment

Beer, baby food, wine. How are they similar? They all come in glass containers. You consume the contents, then toss the glass. While some of those binned bottles will be recycled, 85% of all U.S. post-consumer glass ultimately ends up in landfills. GlassWRX, an advanced technology and materials science company, is working hard to change that statistic. Why? Well, as the company's vision goes: they see a "world without waste."

Launched in early 2020, the Beaufort, South Carolina-based company takes post-consumer soda lime glass from local landfills and runs it through a kilning process to create an innovative media called an engineered cellular magmatic (ECM), which has many industrial applications in resilient infrastructure. "You could say the starting point was foam glass technology, which has been around since the 1930s," says Brad Graham, national director of site implementation at GlassWRX. "But then our founders and scientists took it to a whole new level. While ECMs are nearly 100% glass, they act and react nothing like the glass people expect it to."

That's probably why the U.S. Department of Energy is funding further research into the manufacture and application of ECMs. As the company's brochure explains, "With ECMs we can make better, far longer-lasting and more eco-friendly concretes. We can create materials that are better at cleaning our polluted air and treating our water. We can clean contaminated sites, even remediate decades of nutrient and chemical pollution from the earth. ECMs are restorative and regenerative — by design."

And design it they do. Thanks to an onsite ECM lab and test kiln, GlassWRX can adjust inputs, cellular size, temperature and surface chemistry to custom-engineer ECMs to a customer's unique needs and specifications, whether that be in resilient construction or for blue-green sustainable infrastructure.

TRANSFORMING THE GLASS

Engineering ECMs requires a steady supply of glass, so GlassWRX partners with surrounding county and municipal governments to divert post-consumer glass that is too small or the wrong color for other recycling companies from landfills to the factory. The facility currently receives two to three truckloads of soda lime glass per day, which are weighed and then dumped into piles. A production supervisor checks the glass for any contaminants before moving it into production. At the moment, GlassWRX processes around 135 tons of glass per day across three production lines.

To kick off the production process, a Doosan® DL220-5 wheel loader loads the glass into a crushing machine, which cleans it with pneumatic air pressure

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> **"IT'S ALMOST LIKE OPERATING A VIDEO GAME JOYSTICK.** IT'S VERY, VERY EASY FOR THE OPERATOR TO FALL IN TUNE WITH OPERATING THE MACHINE AND GETTING IT TO DO WHAT YOU WANT. THAT'S PROBABLY ONE OF THE MACHINE'S GREATEST FEATURES."
>
> — **BRAD GRAHAM** / GlassWRX

and crushes it into pieces three-eighths of an inch or smaller. A magnetic block and trommel screen then remove any unwanted metal debris and residue. Next, a dryer ensures that the glass is dry enough to move to the ball mill, which uses 12,000 pounds of steel balls to grind the glass into a fine powder. The powder moves along a pneumatic conveyance system to a screener that ensures the glass particles are the right size. GlassWRX then blends the approved particles into a proprietary mixture before moving the blend through a kiln process, where the mixture is heated and combined with a foaming agent to help it rise from a 1-inch layer to a 4-inch layer, similar to baking a cake. The finished product is an ECM.

To avoid any cross-contamination of raw material with the finished product, a second DL220-5 moves the finished ECMs from the kiln to shipping preparation and storage.

"The reason we have two loaders is that even though our customers are fully aware that our product is made from glass, if they see a fleck of green, blue, clear or brown in the final product, they are going to call us because they can see glass in it," Brad says. "Using the same machine to handle the finished product that also handles the raw feed stock would cause that contamination."

When ECM is ready to ship, the GlassWRX crew pairs a DL220-5 with a light-material bucket to load material into 8-foot-high, open-top containers on trailers. For ECM stored on pallets, a wheel loader outfitted with a pallet fork plays forklift to fill the trucks.

"ECM is 15 pounds per cubic foot — incredibly light material," Brad says. "To give you a comparison, marshmallows are 21 pounds per cubic foot. So I ordered the biggest bucket I could get for the wheel loaders because material weight is not an issue."

A quick coupler on the wheel loaders allows the operator to quickly switch between the attachments without leaving the cab of the machine.

"We've given ourselves extra capacity for what we can use the machines for," Brad says. "We switch to the forks and use it as a forklift and then turn it right back into a loader. Each time we switch attachments using the quick coupler, it's probably a 30-minute savings compared to changing them manually."

SELECTING THE RIGHT MACHINES

When Brad was shopping for GlassWRX's wheel loaders, he recalled what he'd heard about the reliability of Doosan machines.

"I automatically started looking for names I knew, and I was aware of Doosan," he says. "Oddly enough, there was a dealer that sells Doosan machines 40 miles away from where we were building the GlassWRX factory."

Brad found his local dealer on the Doosan website and reached out to the Garden City, Georgia, location of Synergy Equipment to learn more about Doosan wheel loaders. He liked what he found.

"I made the phone call and told them what I needed," Brad says. "We discussed various features of the machines and what I would and wouldn't want. In a day's time, they came back with a quote for the machines. The price point was quite competitive, and the dealer is very well thought of by customers. That was it. I made the decision, and I'm very happy with the machines."

One of the deciding factors for Brad was how he felt behind the wheel of the DL220-5. The ability to adjust controls for operator comfort as well as an air ride seat option sealed the deal.

"These are like driving a Lincoln Continental versus riding on the back of an old tractor," Brad says. "You can operate one of these machines for several hours and not have your back aching or your knees hurting or all the other things that occur if the machine is not very comfortable."

Responsive controls give the operator more precision when loading glass into the crusher and stacking ECM into transport trucks.

"It's almost like operating a video game joystick," Brad says. "It's very easy for the operator to fall in tune with operating the machine and getting it to do what you want. That's probably one of the machine's greatest features."

The standard rearview camera in the wheel loaders enhances the operator's visibility of the GlassWRX facility's busy complex.

"Without that camera, you'd probably risk injury to property and person, especially on a site like this where there are people around all the time," Brad says. "I can minimize the risk of property damage and see when there are people behind the machine. I think it's probably the best safety feature on the machine."

TRACKING MACHINE MAINTENANCE

Easy access points and simple maintenance checks keep the wheel loaders' daily maintenance routines efficient for Brad so he can focus most of his time on the glass work. He points to easily visible lubrication points and fluid ports as two of the biggest maintenance benefits.

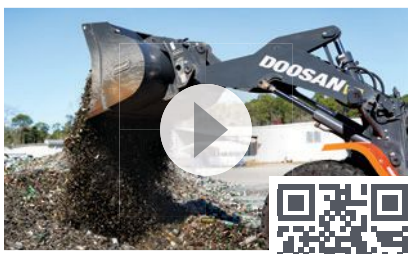
"I think the machines have some of the easiest daily maintenance checks I've ever dealt with," he says.

GlassWRX uses DoosanCONNECT® Telematics to further boost the efficiency of wheel loader maintenance. The diagnostic tool allows the crew to digitally monitor the health, location and productivity of the wheel loaders and receive alerts about maintenance notifications. GlassWRX plans to integrate DoosanCONNECT Telematics into the company's larger facility monitoring system.

"Our entire facility is designed for us to monitor everything that's going on through the computer and track maintenance events," Brad says. "Being able to hook these machines into that same system is one of the things I thought about when purchasing these machines."

When Brad needs parts for the wheel loaders, he can get them quickly thanks to a nearby Doosan parts distribution center in Suwanee, Georgia.

"I was never concerned about the parts availability, because I knew that the company already had a worldwide network of distribution," Brad says. "I verified that there was a local outlet here for parts distribution and that I had serviceability coming from Synergy Equipment. Synergy has been very responsive and very easy to deal with. And so far, these machines are just perfect for how we're using them."



See the GlassWRX facility and wheel loaders at work:
na.DoosanEquipment.com/GlassWRX

WATER LOGGING

COMPANY INFORMATION

Business: Osprey Logistics
In business since: 2020
Location: Everett, Washington
Doosan equipment: DL550-5 wheel loader, DX225LL-5 and DX380LL-5 log loaders
Doosan dealer: Cascade Trader

It's rare for construction equipment to have sea legs. When local timber companies needed help floating material down a waterway, Osprey Logistics came to the rescue. And that solution meant making their machines comfortable in a seaside location.

The Pacific Northwest is well known for both logging and barge transport. This small business found its own way to bridge the two.

PANDEMIC PRESSURE

Osprey Logistics started in May 2020, in the midst of the global health pandemic. Owner Rob Janicki founded the company to serve the logging community in Northwest Washington.

When the COVID-19 pandemic hit, many logging companies found themselves in a bind, including Rob's family's business, Janicki Logging. Any harvested timber on nearby islands or wood meant for overseas transport was stuck. The effects on trade meant they had little to no way to get their timber moved. That's when Rob realized he had to do something.

"We are working with the San Juan Island County residents to come up with ways to help them cost-effectively remove timber from their lands," Rob says. "All the barge loading and unloading facilities in the region went out of business when the tariffs on China started happening. So, we didn't have a place to land our barges. We decided we needed to go ahead and start a brand-new business in the middle of the worst pandemic since 1918."

After leasing some land, Rob worked with Star Marine, a company that owns and operates barges. Together, with Janicki Logging Company providing financing, they built a ramp and set up operations. They now have a staging area for loading and unloading barges and also offer temporary storage.

'THE PEOPLE ARE REALLY GOOD'

Rob has been a part of the Washington forestry industry since he was young. His father, Stan, started Janicki Logging in 1957. Although Rob took a detour to explore the computer business, he returned to the family logging business. The people pulled him back.

"The people are really good in this industry," Rob says. "They're down to earth and honest. You can trust them."

Another person who has been instrumental to the start of the business is Dennis Buss. Some know him as the procurement manager for Osprey Logistics. Others refer to him affectionately as the Timber Yoda. He met the Janicki family when he was running facilities at tree farms in Washington. Their relationship kept up from there.

Rob Janicki (left) and Dennis Buss

> WE DECIDED WE NEEDED TO GO AHEAD AND **START A BRAND-NEW BUSINESS IN THE MIDDLE OF THE WORST PANDEMIC SINCE 1918.**
>
> **– ROB JANICKI** / Osprey Logistics

In all, he has approximately 48 years in the logging industry.

HOLD THE SALT, PLEASE

In the past, barges weren't always necessary for transporting timber. In fact, Dennis remembers simpler times when boats towed rafted logs through the water.

"We used to route logs all the time," he says. "We'd dump logs in the water, and then we'd tow them from one place to the other, and it went on for years. Maybe 70 years we've been doing it, 80 maybe, and that's the way it was done. But what we have found now, is that most of these mills have a CoGen plant or boilers that feed their fry kilns."

CoGen plants use the process of cogeneration to produce electricity and heat at the same time. It's an efficient process that burns excess wood to produce the power. Unfortunately, saltwater can contaminate the wood and cause negative side effects. The salt will melt, coating the boiler and requiring an expensive cleaning process to remove the salt. And as the salt melts, it gives off an emission that pollutes the air. Shutting down the boiler and cleaning it of the salt is necessary.

Transporting trees in Puget Sound's water isn't an option anymore if companies want to keep their product versatile. The trees can't touch the salt water since, according to Dennis, "as soon as the wood hits the water, it starts taking on salt like a cork."

This is where the barges come in.

BY LAND OR SEA

The decision to get into the barge business fell right into place for Rob and Dennis. Being on a major coast and in a port, transportation by water makes a lot of sense. Not only does it give access to island locations, but traffic becomes less of an issue.

"Trying to get a truck through Seattle or Tacoma, you get one truck a day through there going south," Dennis says. "And that's a big problem considering today's truck rates. As for rail, most of the local trains are unit trains that are going up to Canada with coal and coming back with fuel, so rail rates are tough too. The barge becomes the highway around all that traffic and puts it back on the water."

TOOLS FOR THE JOB

After setting up their site and hiring a crew, Rob and Dennis purchased equipment for their operations. They bought a Doosan® DL550-5 wheel loader and a DX380LL-5

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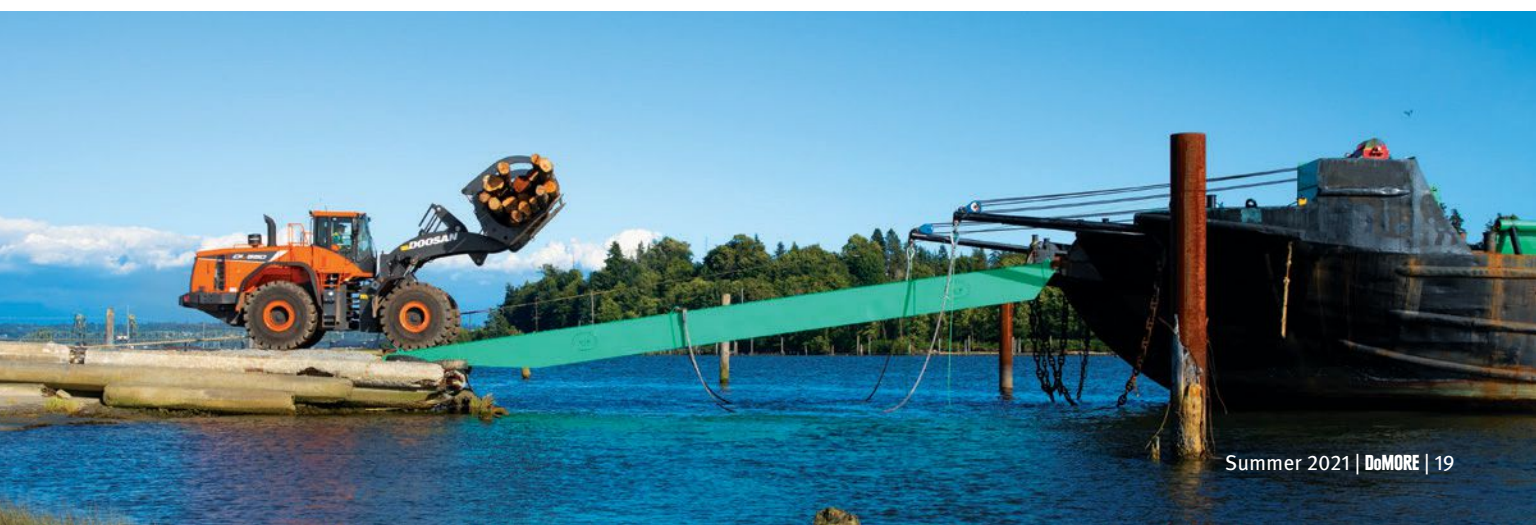


> AS SOON AS THE WOOD HITS THE WATER, IT STARTS TAKING ON SALT LIKE A CORK.
>
> – **DENNIS BUSS** / Osprey Logistics

log loader from Cascade Trader, the local Doosan dealer. Jim Wark and John Griffin of Cascade Trader helped Rob and Dennis through the acquisition process.

The decision came after looking at the financing and previous experience with the brand. Before working for Osprey Logistics, Dennis managed an operation for FORMARK, his previous employer. They used Doosan equipment and were impressed with the reliability, fuel economy and performance.

"We didn't really know anything about a Doosan machine. Man, that thing was awesome," Dennis says. "We had to make two passes to unload the truck, but it was the only machine that we had in the log yard, and it did everything over there. The fuel economy was incredible; it never broke down. I mean, it was incredible."

The DL550-5 wheel loader is the second-largest Doosan model. It features a hydraulic locking front differential, which improves the machine's traction. That's something that comes in handy when operating in wet environments. The DX380LL-5 log loader has a loading height of 38 feet and 5 inches, allowing plenty of room to stack logs.

The wheel loader and log loader efficiently load and unload barges when the company has a shipment. The task sounds simple, but the Doosan equipment traverses a narrow ramp. If the machines stray, they could end up in the water. The wheel loader and log loader work in tandem to transport and stack material in the staging area.

PUSHING PAST THE PANDEMIC

Even though Osprey Logistics just got going, Rob already has a vision for what it can become:

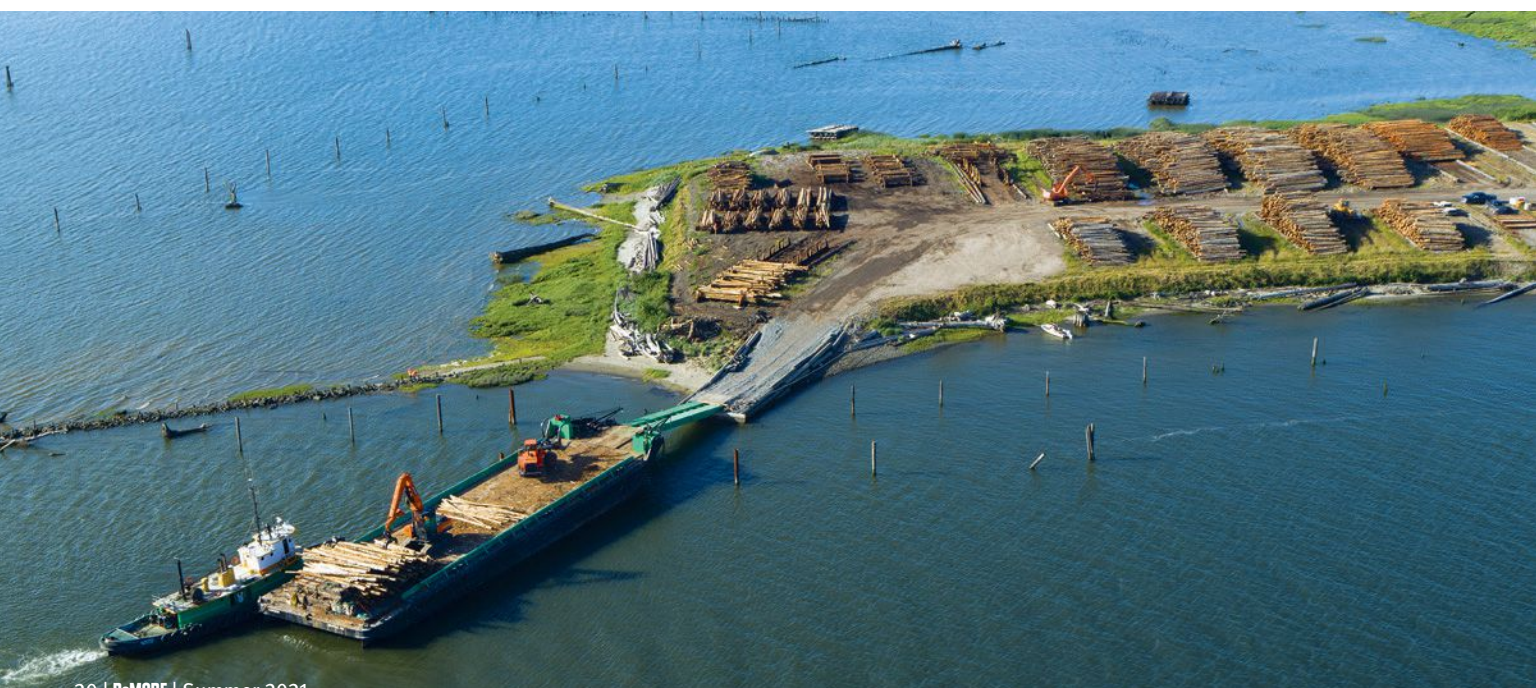
"Our main initial product is logs, but over time we expect to be handling containers and rock aggregate chips, bark and topsoil," Rob says. "Pretty much any bulk product that people want to put on and off of the barge, we will have that capability.

"We have a lot of land there in Everett [Washington] and I could envision us getting into a much bigger distribution opportunity that goes beyond barges," Rob says. "There could be a lot of synergy because there's over 100 acres of potential industrial land in this area."

Though the pandemic prompted the creation of Osprey Logistics, Rob and Dennis now look forward to the future of the company. There is uncertainty, but there is also excitement for what they're achieving.

"That's why we're so excited about it, because there hasn't been any real barging done," Dennis says. "There's been some log barging done around this area in the last few years but barging like we plan on doing hasn't been done for a long, long time. So, this is a real opportunity."

Watch Osprey Logistics' Doosan® equipment load logs on a barge:
na.DoosanEquipment.com/Osprey



WILDFIRE CLEANUP IN OREGON

1

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3

R&L Excavating in Oregon counts on its DX300LL-5 road builder for land clearing and harvesting tasks. When their area was hit with devastating wildfires, they relied on their newest Doosan machine — purchased from Feenaughty Machinery — for clearing burnt timber. With a high and wide undercarriage that includes heavy-duty track links and full-length track guilding guards, the road builder was up to the tough task.

1. *With a heavy-duty undercarriage and a robust excavator boom and arm, the DX300LL-5 is up to a variety of forestry tasks.*
2. *The DX300LL-5 road builder stacks timber after the wildfires.*
3. *A thumb and bucket combination makes it easier to grab, lift and place objects.*

PRODUCT SPECIFICATIONS

ARTICULATED DUMP TRUCKS

	PAYLOAD	BODY CAPACITY* HEAPED	RATED POWER GROSS
DA30-5	61,729 lb. (28,000 kg)	22.0 yd³ (16.8 m³)	375 hp (276 kW)
DA45-5	90,390 lb. (41,000 kg)	31.9 yd³ (24.4 m³)	500 hp (368 kW)

** Without tailgate*

CRAWLER EXCAVATORS

	OPERATING WEIGHT	BUCKET CAPACITY HEAPED, ISO/SAE	RATED POWER GROSS
DX140LC-5	32,783 lb. (14,870 kg)	0.48 yd³ (0.37 m³)	115 hp (86 kW)
DX140LCR-5	34,987 lb. (15,870 kg)	0.51 yd³ (0.39 m³)	115 hp (86 kW)
DX170LC-5	38,376 lb. (17,407 kg)	0.86 yd³ (0.66 m³)	131 hp (98 kW)
DX180LC-5	43,224 lb. (19,610 kg)	0.92 yd³ (0.70 m³)	131 hp (98 kW)
DX225LC-5*	52,086 lb. (23,626 kg)	1.20 yd³ (0.92 m³)	166 hp (124 kW)
DX235LCR-5	56,019 lb. (25,410 kg)	1.20 yd³ (0.92 m³)	189 hp (141 kW)
DX255LC-5	57,752 lb. (26,196 kg)	1.44 yd³ (1 .10 m³)	189 hp (141 kW)
DX300LC-5*	68,764 lb. (31,191 kg)	1.66 yd³ (1.27 m³)	271 hp (202 kW)
DX350LC-5	80,689 lb. (36,600 kg)	1.95 yd³ (1.49 m³)	286 hp (213 kW)
DX420LC-5	94,799 lb. (43,000 kg)	2.49 yd³ (1.90 m³)	345 hp (257 kW)
DX490LC-5	112,203 lb. (50,894 kg)	2.80 yd³ (2.14 m³)	380 hp (283 kW)
DX530LC-5*	116,576 lb. (52,878 kg)	3.13 yd³ (2.39 m³)	380 hp (283 kW)
DX800LC-7	181,000 lb. (82,100 kg)	5.10 yd³ (3.90 m³)	539 hp (402 kW)

*LC = Long Carriage LCR = Long Carriage Reduced Tail Swing * = Super-Long-Reach (SLR) option available*

WHEEL EXCAVATORS

	OPERATING WEIGHT	BUCKET CAPACITY HEAPED, ISO/SAE	RATED POWER GROSS
DX140W-5	34,203 lb. (15,514 kg)	0.73 yd³ (0.56 m³)	137 hp (102 kW)
DX190W-5	43,431 lb. (19,700 kg)	1.05 yd³ (0.80 m³)	174 hp (129 kW)
DX210W-5	47,179 lb. (21,400 kg)	1.12 yd³ (0.86 m³)	189 hp (141 kW)

MINI EXCAVATORS

	OPERATING WEIGHT	BUCKET CAPACITY HEAPED, ISO/SAE	RATED POWER GROSS
DX35-5	8,193 lb. (3,716 kg)	0.13 yd³ (0.10 m³)	34 hp (25 kW)
DX42-5K	10,114 lb. (4,588 kg)	0.19 yd³ (0.15 m³)	43 hp (31 kW)
DX50-5K	11,486 lb. (5,210 kg)	0.20 yd³ (0.15 m³)	50 hp (37 kW)
DX62R-3	13,799 lb. (6,259 kg)	0.23 yd³ (0.17 m³)	59 hp (44 kW)
DX63-3	13,799 lb. (6,259 kg)	0.23 yd³ (0.17 m³)	59 hp (44 kW)
DX85R-3	18,960 lb. (8,600 kg)	0.37 yd³ (0.28 m³)	59 hp (44 kW)

WHEEL LOADERS

	BUCKET CAPACITY HEAPED, ISO/SAE	TIPPING LOAD, STATIC FULL TURN	RATED POWER GROSS
DL200-5*	2.6 yd³ (2.0 m³)	18,620 lb. (8,445 kg)	142 hp (106 kW)
DL200TC-5	2.6 yd³ (2.0 m³)	16,625 lb. (7,540 kg)	142 hp (106 kW)
DL220-5*	3.0 yd³ (2.3 m³)	18,750 lb. (8,505 kg)	160 hp (119 kW)
DL250-5*	3.3 yd³ (2.5 m³)	21,186 lb. (9,610 kg)	172 hp (128 kW)
DL250TC-5	3.3 yd³ (2.5 m³)	20,723 lb. (9,400 kg)	172 hp (128 kW)
New DL280-7*	3.7 yd³ (2.8 m³)	27,064 lb. (12,276 kg)	189 hp (141 kW)
New DL320-7*	4.2 yd³ (3.2 m³)	34,496 lb. (15,647 kg)	271 hp (202 kW)
New DL380-7*	4.8 yd³ (3.7 m³)	36,198 lb. (16,419 kg)	271 hp (202 kW)
New DL420-7*	5.5 yd³ (4.2 m³)	42,719 lb. (19,377 kg)	345 hp (257 kW)
New DL480-7*	6.3 yd³ (4.8 m³)	45,323 lb. (20,558 kg)	345 hp (257 kW)
New DL550-7*	6.8 yd³ (5.2 m³)	53,273 lb. (24,164 kg)	380 hp (283 kW)
New DL580-7	8.4 yd³ (6.4 m³)	60,550 lb. (27,465 kg)	394 hp (294 kW)

*TC = Tool Carrier * = High-Lift (HL) option available*

LOG LOADERS

	OPERATING WEIGHT	SWING TORQUE	RATED POWER GROSS
DX225LL-5	68,784 lb. (31,200 kg)	69,623 lbf.-ft. (9,626 kgf-m)	167 hp (124 kW)
DX300LL-5	81,703 lb. (37,060 kg)	87,787 lbf.-ft. (12,137 kgf-m)	271 hp (202 kW)
DX380LL-5	113,538 lb. (51,500 kg)	129,876 lbf.-ft. (17,956 kgf-m)	317 hp (237 kW)

	OPERATING WEIGHT	BUCKET CAPACITY HEAPED, ISO/SAE	RATED POWER GROSS
DX225LL-5*	63,714 lb. (28,900 kg)	1.2 yd³ (0.92 m³)	166 hp (124 kW)
DX300LL-5*	82,012 lb. (37,200 kg)	2.1 yd³ (1.60 m³)	271 hp (202 kW)
DX380LL-5*	108,699 lb. (49,300 kg)	2.4 yd³ (1.80 m³)	318 hp (237 kW)

*LL = Log Loader * = Road Builder configuration*

MATERIAL HANDLERS

	OPERATING WEIGHT	MAX. REACH GROUND	RATED POWER GROSS
DX225MH-5	60,848 lb. (27,600 kg)	35 ft. 5 in. (10,800 mm)	166 hp (124 kW)
DX250WMH-5	57,221 lb. (25,955 kg)	35 ft. 2 in. (10,720 mm)	189 hp (141 kW)
DX300MH-5	79,366 lb. (36,000 kg)	42 ft. 7 in. (13,000 mm)	271 hp (202 kW)

MH = Material Handler WMH = Wheel Material Handler

NOTE — Where applicable, dimensions are in accordance with Society of Automotive Engineers (SAE) and ISO standards. Specifications and design are subject to change without notice. Pictures of Doosan® equipment may show other than standard equipment. All dimensions are shown in inches. Respective metric dimensions are enclosed by parentheses. Doosan Infracore North America, LLC, equipment is manufactured with a Quality Management System that is in compliance with ISO 9001:2008. All dimensions are given for the standard configuration unless otherwise noted.

Visit **na.DoosanEquipment.com** for more product specifications.

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